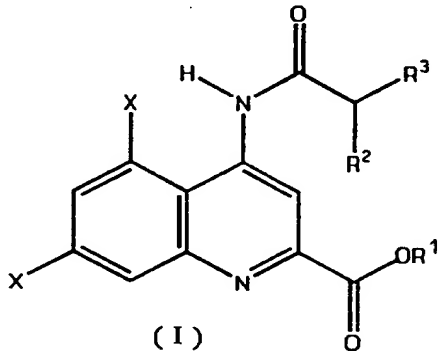
CLAIMS

WE CLAIM:

1. A method suitable for treating withdrawal syndromes manifested in a patient suffering withdrawal symptoms and/or withdrawal-induced brain damage which comprises administering an effective ameliorating amount of a compound having the general formula (I):



(I)

a tautomer thereof, a pharmacologically acceptable ester, amide, salt, ether, or an acid addition salt thereof;

wherein R^1 represents hydrogen or an alkyl group of 1 to 6 carbon atoms;

R^2 and R^3 each independently represent phenyl which may be unsubstituted or substituted one or more times with substituents selected from the group consisting of alkoxy, cycloalkoxy, alkyl, and cycloalkyl groups containing up to 6 carbon atoms, hydrogen, hydrocarbon selected from the group consisting of straight chain, branched, cyclic, and heterocyclic groups containing up to 18 carbon atoms, halogen, cyano, trifluoromethyl, nitro, $-OR^a$, $-SR^a$, $-NR^aR^b$, NR^aCOR^b, $-NR^aCO_2R^b$, $-NR^aSO_2R^b$, $-NR^iCZNR^aR^b$, $-CO_2$, or $-CONR^aR^b$; wherein R^a, R^b, R^i each independently represent hydrogen or hydrocarbon as described above and can be the same or different and Z represents oxygen, sulphur, or a group of formula =N,E; wherein E represents hydrocarbon as described above or an electron-withdrawing group; or

R^2 and R^3 together with the intervening carbon atom represent carbonyl (C=O), thiocarbonyl (C=S), imino (C=N,R^a), oximino (C=N,OR^a),

or a 3- to 8-membered ring containing from zero to 4 hetero-atoms selected from the group consisting of oxygen, nitrogen, sulphur and phosphorus; wherein R• represents hydrogen or hydrocarbon as described above;

wherein each of the R^2 and R^3 substituents can be the same or different; and

X represents halogen and each of the 5, 7, substituents can be the same or different.

2. The method of claim 1 wherein in the compound of formula (I) each of the X substituents is chloro, R^1 is hydrogen, and R^2 and R^3 each is a phenyl group.

3. The method of claim 1 wherein in the compound of formula (I) each of the X substituents is chloro, R^1 is an alkyl group having 1 to 3 carbon atoms, and R^2 and R^3 each is a phenyl group.

4. The method of claim 1 wherein in the compound of formula (I) each of the X substituents is chloro, R^1 is hydrogen, one of R^2 and R^3 is an unsubstituted phenyl group and the other is phenyl having an alkoxy substituent having 1 to 3 carbon atoms.

5. The method of claim 1 wherein the treatment is for alcohol withdrawal.

6. The method of claim 1 wherein the treatment is for drug withdrawal.

7. The method of claim 1 wherein the treatment is for withdrawal-induced brain damage.

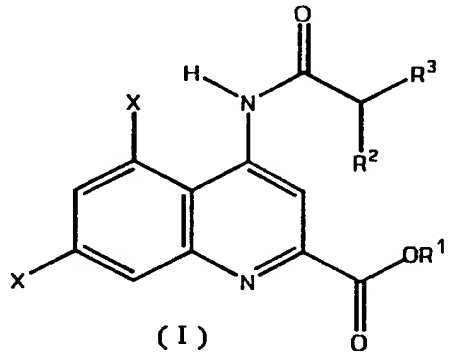
8. The method of claim 1 wherein the compound is administered in an amount of up to about 500 mg/kg of body weight.

9. The method of claim 1 wherein the amount of compound administered is in the range of about 10 to about 100 mg/kg of body weight.

10. A composition suitable for use in the method of claim 1 containing a compound selected from the group consisting of a compound of formula (I), a tautomer, or pharmaceutically acceptable ester, amide, salt, ether and addition salt thereof, in an amount of about 0.1 to about 95 weight percent and a pharmaceutically acceptable vehicle.

11. The composition of claim 10 wherein the compound is selected from the group consisting of (N,N-diphenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline, (N,N-diphenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline methyl ester, and N-phenyl, N-[2-methoxy]phenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline.

12. A compound suitable for treating withdrawal syndromes manifested in a patient suffering withdrawal symptoms and/or withdrawal-induced brain damage which comprises administering an effective ameliorating amount of a compound having the general formula (I):



(I)

a tautomer thereof, a pharmacologically acceptable ester, amide, salt, ether, or an acid addition salt thereof;

wherein R^1 represents hydrogen or an alkyl group of 1 to 6 carbon atoms;

R^2 and R^3 each independently represent phenyl which may be unsubstituted or substituted one or more times with substituents selected from the group consisting of alkoxy, cycloalkoxy, alkyl, and cycloalkyl groups containing up to 6 carbon atoms, hydrogen, hydrocarbon selected from the group consisting of straight chain, branched, cyclic, and heterocyclic groups containing up to 18 carbon atoms, halogen, cyano, trifluoromethyl, nitro, $-OR^a$, $-SR^a$, $-NR^aR^b$, NR^aCOR^b, $-NR^aCO_2R^b$, $-NR^aSO_2R^b$, $-NR^iCZNR^aR^b$, $-CO_2$, or $-CONR^aR^b$; wherein R^a, R^b, R^i each independently represent hydrogen or hydrocarbon as described above and can be the same or different and Z represents oxygen,

sulphur, or a group of formula =N,E; wherein E represents hydrocarbon as described above or an electron-withdrawing group; or

R^2 and R^3 together with the intervening carbon atom represent carbonyl (C=O), thiocarbonyl (C=S), imino (C=N,R^a), oximino (C=N,OR^a), or a 3- to 8-membered ring containing from zero to 4 hetero-atoms selected from the group consisting of oxygen, nitrogen, sulphur and phosphorus; wherein R^a represents hydrogen or hydrocarbon as described above;

wherein each of the R^2 and R^3 substituents can be the same or different; and

X represents halogen and each of the 5, 7, substituents can be the same or different.

13. A compound of claim 12 wherein each of the X substituents is chloro, R^1 is hydrogen, and R^2 and R^3 each is a phenyl group.

14. A compound of claim 12 wherein each of the X substituents is chloro, R^1 is an alkyl group having 1 to 3 carbon atoms, and R^2 and R^3 each is a phenyl group.

15. A compound of claim 12 wherein each of the X substituents is chloro, R^1 is hydrogen, one of R^2 and R^3 is an unsubstituted phenyl group and the other is phenyl having an alkoxy substituent having 1 to 3 carbon atoms.

16. A method of preparing a compound of claim 12 comprising the steps of:

a) reacting 3,5-dichloroaniline and dimethyl acetylenedicarboxylate to form dimethylanilinofumarate;

b) cyclizing the dimethylanilinofumarate with diphenyl ether to form 4(1H)-quinolone-2-carboxylate;

c) aminating the 4(1H)-quinolone-2-carboxylate with chlorosulphonyl isocyanate in acetonitrile to form a 4-aminated derivative thereof; and

d) acylating the 4-aminated derivative with diphenyl carbamoyl chloride to form (N,N-diphenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline methyl ester.

17. The method of claim 16 further including the step of:

e) hydrolyzing the (N,N-diphenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline methyl ester to (N,N-diphenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline.

18. The product of the method of claim 16.

19. The product of the method of claim 17.

20. A compound of claim 12 characterized by exhibiting an affinity for both the strychnine insensitive glycine binding site on the N-methyl-D-aspartate receptor and voltage dependent sodium channels when administered systemically to a patient subject to or manifesting neuroexcitability disorders.

21. A method suitable for treating a patient to prevent or ameliorate neuroexcitability disorders comprising administering to a patient in need of such treatment an antagonist compound exhibiting affinity for both the strychnine-insensitive glycine binding site on N-methyl-D-aspartate receptor and voltage dependent sodium channels.

22. The method of claim 21 wherein the compounds is selected from the group consisting of N-substituted-4-ureido-5,7-dihydro-2-carboxy quinoline, a tautomer thereof, a pharmacologically acceptable ester, amide, salt, ether and addition salt thereof.

23. The method of claim 21 wherein the compound is selected from the group consisting of (N,N-diphenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline, (N,N-diphenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline methyl ester, and N-phenyl, N-[2-methoxy]phenyl)-4-ureido-5,7-dichloro-2-carboxy-quinoline.